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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kosuke Fujiwara

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EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,602	Applicant(s) FUJIWARA ET AL.	
	Examiner PEGAH PARVINI	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-17 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) 15-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7, 10-14 and 27 is/are allowed.
- 6) ☒ Claim(s) 8, 22-26 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/7/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

Claim 8 and 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 states that a "major" crystals are of the form Fe_2O_3 and Fe_3O_4 ; however, the term "major" in said claim is a relative term which renders the claim indefinite. The term "major" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Therefore, said claim is indefinite.

It is noted that claims 22-26, which either directly or indirectly depends on claim 8 are also indefinite.

Claim Rejections - 35 USC § 103

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Sullivan et al.

Weaver teaches glass-ceramics comprising Fe_2O_3 , Li_2O and SiO_2 (Abstract; column 2, lines 28-45). The reference discloses that said composition crystallizes

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(Abstract; column 2, lines 28-45), and the reference discloses that the crystals are ferrite type (column 4, lines 10-11, and 47-49).

Although the reference is silent to the formation of said glass-ceramics into flakes, it would have been obvious to modify Weaver in order to obtain said glass-ceramics in flakes form motivated by the fact that Sullivan et al., drawn to pearlescent glass pigment, disclose that flakes form of glass is desirable in the industry because they are very resilient and can be optically attractive as well (column 2, lines 28-35).

With reference to the visible-light transmittance, it is to be noted that glasses having high content of iron oxide as that taught by Weaver would result in dark and black glasses which, as thick segments, would have low light transmittance; thus, thin flakes of them would have a higher transmittance.

With reference to the specific transmittance for the specified thickness as that recited in claim 8, it is noted that since the combination of references disclose a very similar glass composition as that specifically recited in instant claim 8, the property of the visible-light transmittance of 85% or lower as measured with an A light source when the glass flake has a thickness of 15 microns is taken to follow from the composition of the instant references absence evidence to the contrary.

Finally, the composition as that taught by Weaver crystallizes (Abstract; column 2, lines 28-45), and the reference discloses that the crystals are ferrite type (column 4, lines 10-11, and 47-49). Although Weaver may not expressly disclose that the metal crystals of the form Fe_2O_3 and Fe_3O_4 as a major crystal, the reference discloses ferrite

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type crystals and this is taken to broadly read on any type of Fe crystals such as Fe_2O_3 and Fe_3O_4 absence clear and specific evidence showing the contrary.

It is to be noted that although the language of claim 8 do not recite "glass" flake any more, "A flake" broadly includes any flake such as glass flake; therefore, the fact that Weaver teaches glass composition which as combined with Sullivan, as detailed out above, can be formed into flakes is seen to read on instant claim 8 with reference to the recitation of "A flake..." as well.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Sullivan et al., as applied to claim 8 above, and in further view of Fujita et al.

The combination of Weaver in view of Sullivan et al., as detailed above, disclose a composition of glass which would be obvious to form them into flakes comprising approximately 35 to 60 parts by weight of Fe_2O_3 , 3.5 to 20 parts by weight of Li_2O and 10 to 60 parts by weight of SiO_2 which is desirable to be in flake form.

The combination of references does not expressly disclose the use of metal oxides or any metal, as that claimed in instant claim 13, in a coating covering said glass flakes.

Fujita et al., drawn to paint composition, disclose successively coating the surface of a glass flake with silver and nickel to obtain flaky particles as metallic pigment (Abstract; [0004], [0020]).

Thus, it would have been obvious to one of ordinary skill in the art to have modified Weaver in view of Sullivan et al. in order to include a surface coating of a metal such as silver and nickel as that taught by Fujita et al. motivated by the fact that each metal, silver and nickel, provide a specific tone to the paint such as silver tone and dark tone which would result in a desirable medium tone; furthermore, this coating on the glass flake will exhibit strong glitter effect (Abstract).

Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Sullivan et al., as applied to claim 8 above, and in further view of JP-2000219534 to Machishita et al.

The combination of Weaver in view of Sullivan et al., as detailed above, disclose a composition of glass comprising approximately 35 to 60 parts by weight of Fe_2O_3 , 3.5 to 20 parts by weight of Li_2O and 10 to 60 parts by weight of SiO_2 which is desirable to be formed into flakes.

The combination of references does not expressly disclose the ratio recited in claims 22 and 23; however, it would have been obvious to modify said ratio to result in a value such as about 0.2 for the $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ as that implied by Machishita et al. (Abstract) since they disclose a ratio of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25-0.45 motivated by the fact that it is obvious to a skilled artisan to modify the amount of different iron oxides so to obtain a ratio of $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ within the claimed ranges recited in claims 22 and 23 such as obtaining the value of about 0.2 for said ratio as that implied/taught by Machishita et al.

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because Weaver makes it clear that the proportion of Fe^{2+} to Fe^{3+} affect the electrical resistance (Weaver, column 6, lines 15-21).

With reference on how the value of about 0.2 was obtained for the ratio of $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ from the teachings of Machishita et al., it is, respectfully, submitted that Machishita et al. disclose a ratio of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25-0.45. Taking the lower range of 0.25, this implies that the amount of Fe^{2+} is one-fourth that of Fe^{3+} . Thus, if for example, assuming 10 units for Fe^{2+} , in order to reach the ration of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25, the amount of Fe^{3+} has to be 40 units. Therefore, $10/(10+40)$ results in 0.2.

It is further submitted that instant claims 8, 22 and 23 do not disclose any amount for a transition metal.

Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Sullivan et al., as applied to claim 8 above, and in further view of Marshall et al.

The combination of Weaver in view of Sullivan et al., as detailed above, disclose a composition of glass comprising approximately 35 to 60 parts by weight of Fe_2O_3 , 3.5 to 20 parts by weight of Li_2O and 10 to 60 parts by weight of SiO_2 which is desirable to be formed into flakes.

Although the combination of references discloses the use of metal oxides in the glass flakes, they do not expressly disclose the use of said oxides in a coating covering said glass flakes. Again, it is to be noted that since instant claims recite flake and flake can broadly reads on any type of flakes; therefore, the fact that Weaver teaches glass

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composition which as combined with Sullivan, as detailed out above, can be formed into flakes is seen to read on instant claim 8 and its dependent claims with reference to the recitation of "A flake..." as well.

Marshall et al. teach coating metal oxides such as zirconium dioxide, chromium oxide and the like, especially titanium dioxide on the glass flakes to provide improved sparkle and intense interference colors (column 2, lines 42-65; column 13, lines 64-75; column 14, lines 1-11).

Thus, it would have been obvious to one ordinary skill in the art to modify Weaver in view of Sullivan et al. in order to expressly disclose coating glass flakes with metal oxides as that taught by Marshall et al. motivated by the fact that such coatings provide improved effects on the glass flakes (Marshall et al., column 2).

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver in view of Sullivan et al., as applied to claim 8 above, and in further view of Machishita et al.

Weaver teaches glass-ceramics having approximately Fe_2O_3 , Li_2O and SiO_2 (Abstract; column 2, lines 28-45). The reference discloses that said composition crystallizes (Abstract; column 2, lines 28-45), and the reference discloses that the crystals are ferrite type (column 4, lines 10-11, and 47-49).

Although the reference is silent to the formation of said glass-ceramics into flakes, it would have been obvious to modify Weaver in order to obtain said glass-ceramics in flakes form motivated by the fact that Sullivan et al., drawn to pearlescent

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glass pigment, disclose that flakes form of glass is desirable in the industry because they are very resilient and can be optically attractive as well (column 2, lines 28-35).

With reference to the visible-light transmittance, it is to be noted that glasses having high content of iron oxide as that taught by Weaver would result in dark and black glasses which, as thick segments, would have low light transmittance; thus, thin flakes of them would have a higher transmittance.

With reference to the specific transmittance for the specified thickness as that recited in claim 8, it is noted that since the combination of references disclose a very similar glass composition as that specifically recited in instant claim 8, the property of the visible-light transmittance of 85% or lower as measured with an A light source when the glass flake has a thickness of 15 microns is taken to follow from the composition of the instant references absence evidence to the contrary.

Finally, the composition as that taught by Weaver crystallizes (Abstract; column 2, lines 28-45), and the reference discloses that the crystals are ferrite type (column 4, lines 10-11, and 47-49). Although Weaver may not expressly disclose that the metal crystals of the form Fe_2O_3 and Fe_3O_4 as a major crystal, the reference discloses ferrite type crystals and this is taken to broadly read on any type of Fe crystals such as Fe_2O_3 and Fe_3O_4 absence clear and specific evidence showing the contrary.

It is to be noted that although the language of claim 8 do not recite "glass" flake any more, "A flake" broadly includes any flake such as glass flake; therefore, the fact that Weaver teaches glass composition which as combined with Sullivan, as detailed

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out above, can be formed into flakes is seen to read on instant claim 8 with reference to the recitation of "A flake..." as well.

The combination of references does not expressly disclose the ratio recited in claim 28; however, it would have been obvious to modify said ratio to result in a value such as about 0.2 for the $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ as that implied by Machishita et al. (Abstract) since Machishita et al. disclose a ratio of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25-0.45 and motivated by the fact that it is obvious to a skilled artisan to modify the amount of different iron oxides so to obtain a ratio of $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ within the claimed ranges recited in claim 28 such as obtaining the value of about 0.2 for said ratio as that implied/taught by Machishita et al. because Weaver makes it clear that the proportion of Fe^{2+} to Fe^{3+} affect the electrical resistance (Weaver, column 6, lines 15-21).

With reference on how the value of about 0.2 was obtained for the ratio of $\text{Fe}^{2+}/(\text{Fe}^{2+}+\text{Fe}^{3+})$ from the teachings of Machishita et al., it is, respectfully, submitted that Machishita et al. disclose a ratio of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25-0.45. Taking the lower range of 0.25, this implies that the amount of Fe^{2+} is one-fourth that of Fe^{3+} . Thus, if for example, assuming 10 units for Fe^{2+} , in order to reach the ration of $\text{Fe}^{2+}/\text{Fe}^{3+}$ of 0.25, the amount of Fe^{3+} has to be 40 units. Therefore, $10/(10+40)$ results in 0.2.

It is further submitted that instant claim 28 does not disclose any amount for a transition metal.

Response to Amendment

Applicants' amendment to claims 1, 3-8, and 22-26, filed February 19, 2009, are acknowledged.

However, with reference to claims 8 and 22-26, said amendments do not place the application in condition for allowance.

Response to Arguments

Applicants' arguments filed June 24, 2008 have been fully considered but they are not persuasive with regards to the rejection of claims 8, 22-26.

Applicants have argued that Weaver fails to disclose that the lithium ferrite crystals in the glass-ceramics include Fe_2O_3 or Fe_3O_4 as a major crystal.

The Examiner, respectfully, submits that this is not found persuasive because since the reference discloses "ferrite", this is seen to read on any crystals containing any form of Fe; thus, the reference broadly reads on said limitation. In addition, this argument is not deemed persuasive since arguments cannot take the place of evidence in the record to overcome a rejection. See MPEP § 2145.

In addition, claim 8 states "metal oxide crystals" and lithium ferrite is broadly considered to be a metal oxide and, as evidence to this, the examiner cites claim 2 of Hutcheson. Since Weaver teaches that lithium ferrite is a crystal, this when combined with the evidence above proves that lithium ferrite is a metal oxide crystal and ferrite contains Fe_2O_3 thus reading on the claimed limitation. With respect to the added limitation in claim 8, burden is upon applicants to show that Fe_2O_3 in lithium ferrite is not present as a major crystal of the ferrite, especially since no definition of "major" is given. In addition, the broad recitation of "lithium ferrite" would imply any lithium ferrite and it is

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the examiners position that in lithium ferrites, ferric oxide is a major phase absent clear evidence otherwise.

The reference directed to Hutcheson is provided only for the purpose of rebutting applicants position and the showing that lithium ferrite is a metal oxide as would be notoriously known and appreciated in the art.

Applicants' arguments, see pages 6-9, filed February 19, 2009 with respect to claims 1, 3-7, 10-14 and specifically with respect to the amendment made to claim 1 regarding the amount of a transition metal oxide in the claimed glass composition and the glass flakes being free of a metal oxide crystals containing Fe as a constituent atom, have been fully considered and are persuasive in view of the amendments. The rejection of said claims has been withdrawn.

Allowable Subject Matter

Claims 1-7, 10-14 and 27 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest a glass flake comprising a glass composition wherein the glass composition comprises at least 18 mass% of a transition metal oxide and/or the glass flake is free from a metal oxide crystal that contains Fe as a constituent atom.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegah Parvini/
Examiner, Art Unit 1793

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793